



ecology and environment, inc.

1776 SOUTH JACKSON STREET, DENVER, COLORADO 80210, TEL. 303-757-4984

International Specialists in the Environment



335405

7152

SF FILE NUMBER

TO : Mike Zimmerman, OSC
FROM : Scott Keen, E & E TAT *SK*
DATE : February 2, 1993
SUBJECT: Richardson Flats Data
T08-9210-041

FILE PLAN

2.0

The memo from Steve Callio dated December 29, 1992 pertained to the organics data from the three monitoring wells surrounding the landfill area. The samples were collected during the week of November 9, 1993.

The lab appears to have made a non-analytical procedural error; however the error cannot have any effect on the quality or integrity of the data. In the absolute worst case (in a courtroom) the original data package would be presented. It would not matter that copies were not marked "Copy".

If you need further information, feel free to get in touch with me or Randy Perlis.



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International Specialists in the Environment

TO: Mike Zimmerman, EPA-OSC
FROM: Cordel Schmidt, TAT
DATE: January 4, 1993
SUBJECT: Transmittal of Sampling Activities Report for the
Richardson Flats Site, Summit County, Park City, Utah.
TDD# T08-9210-041.

Please find attached a copy of the Report of Sampling Activities for the Richardson Flats Site-landfill area monitoring wells, TDD# T08-9210-041. Analytical results have not yet been QA'd by our staff chemists but they have been received and I expect QA'd results soon. Please call me with your questions and comments.

REPORT OF SAMPLING ACTIVITIES
RICHARDSON FLATS TAILINGS SITE
PARK CITY, SUMMIT COUNTY, UTAH
TDD #T08-9210-041
PAN EUT0039SCA

PREPARED FOR:

U.S. Environmental Protection Agency
Region VIII
Waste Management Division
Mike Zimmerman, On-Scene Coordinator

PREPARED BY:

Cordel Schmidt
Ecology and Environment, Inc.
Technical Assistance Team

DATE SUBMITTED: January 4, 1993

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REPORT OF SAMPLING ACTIVITIES
RICHARDSON FLATS TAILINGS SITE
SUMMIT COUNTY, UTAH
TDD #T08-9210-041 PAN EUT0039SCA

1.0 INTRODUCTION

The Ecology and Environment, Inc. Technical Assistance Team (E & E TAT) was tasked by the Environmental Protection Agency-Emergency Response Branch (EPA-ERB) to conduct groundwater sampling activities at the Richardson Flats Tailings site (RFT) located in Park City, Summit County, Utah. The sampling activities were conducted during November 9 and 10, 1992 and consisted of the collection of groundwater samples from three groundwater monitoring wells drilled and installed by TAT during June 23 through 27, 1992.

The TAT sampling team consisted of Cordel Schmidt, Project Officer and Troy Sanders, Site Safety Officer. Sampling activities were conducted in personal protection Level D and were monitored with an organic vapor analyzer (OVA) for volatile organics. Site activities were also photodocumented.

All sampling activities were conducted in accordance with EPA accepted Standard Operating Procedures (SOP) III-2. The wells were purged and sampled by means of a peristaltic pump (MW-01), and dedicated Teflon bailers (MW-02 and MW-03). Sample were shipped on November 10, 1992 to two laboratories for analysis under quality assurance (QA) Level II as follows: inorganics (total metals) were shipped to Skinner and Sherman Laboratories in Waltham, Massachusetts; organics (volatile organics, pesticides, base neutral acids) were shipped to Lauks Testing Laboratories, Inc. in Seattle, Washington. Analytical results are pending at the time of this writing.

2.0 SITE DESCRIPTION

The Richardson Flats Tailings site is located approximately three and one-half miles northeast of Park City in Summit County, Utah. The site consists primarily of metallic ore mill slurries and waste rock materials in a tailings pile which covers approximately 160 acres of the site. A sanitary/municipal landfill, numerous debris piles, and open areas occupy other portions of the site. The site is situated in a topographic depression and is bounded by Silver Creek to the west, U.S. Highway 40 to the north, and county roads to the east and south (Figure 1). A newly constructed section of Highway 40 bisects the landfilled area of the site. The legal description of the area of interest currently under investigation is the southwest quarter of the northeast quarter of Section 2, Township 2 South, Range 4 East.

The E & E Field Investigation Team (FIT) had previously conducted a drilling and multimedia sampling investigation which focused on the tailings material present on-site. Analytical results indicated that all tailings samples collected contained high concentrations of inorganic contaminants. The previous sampling efforts did not address

the potential leakage and resulting groundwater contamination from the landfill area on-site.

3.0 SAMPLING PROCEDURES

The TAT collected a total of 31 samples (Table 2) during sampling activities at the RFT landfill area on November 9 and 10, 1992. All samples, excluding quality control samples (rinsate blanks) were collected from three groundwater monitoring wells installed by the TAT during June 23 through 27, 1992 (Figure 2). Sampling operations adhered to an EPA approved QA/QC work plan. Sampling activities were monitored with an OVA with results presented in Table 1. Note that all breathing zone OVA readings were at background levels during all sampling and purging operations. Each monitoring well was unlocked by the EPA On-Scene Coordinator (who was present on-site during all sampling activities) as sampling progressed sequentially from RF-MW-01 to RF-MW-03. The wells were locked and secured immediately following sample collection.

All sampling operations were conducted in Level D personal protective equipment and included the use of Tyvek suits and "surgical" nitrile gloves. Sampling at location RF-MW-01 was achieved by the use of a peristaltic pump with which dedicated silicone and Tygon tubing was used to pull water from the well and deposit it directly into a collection vessel. Note that all collection vessels (i.e., poly bottles for metals analysis, amber glass for BNA/pesticides/PCBs analysis, glass vials for volatile organics analysis) were laboratory decontaminated prior to use by the TAT. Sampling at locations RF-MW-02 and RF-MW-03 was achieved by means of dedicated Teflon bailers which were lowered into the wells by dedicated poly rope. Water samples were then poured from the bailer into respective collection vessels. Samples at each location were collected in order of 1) VOA, 2) BNA, 3) Pesticides/PCBs, 4) unfiltered metals, and 5) filtered metals. Metals were filtered at each well by use of a peristaltic pump which forced the sample through a .45 micron filter and into a poly bottle. Samples were shipped for laboratory analyses on November 10, 1992 via Federal Express. Note that organics were preserved with wet ice during sampling and shipping, while inorganics were preserved with nitric acid to pH \leq 2.

Quality control was achieved by including a triple volume sample (RF-MW-02) for laboratory matrix spike and duplicate purposes, a duplicate sample (RF-MW-04) for an E & E in-house QA/QC check on laboratory results, rinsate blanks (RF-GW-20 and RF-GW-30) for a QA/QC check on possible cross-contamination between monitoring wells via sampling equipment, and a trip blank (RF-GW-10) included in the shipment cooler containing samples destined for VOA analyses in an effort to detect any possible cross-contamination during shipment to the laboratory.

Non-dedicated equipment (e.g., water level indicator, small piece of silicone tubing, and pH/conductivity meter) were decontaminated by blotting with paper towels and triple rinsing with deionized water. The two rinsate blanks collected after decontamination procedures were 1) RF-GW-20, a VOA rinsate blank derived from the water level indicator,

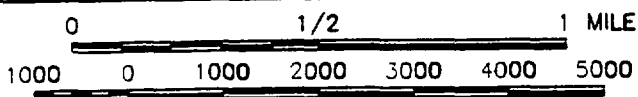
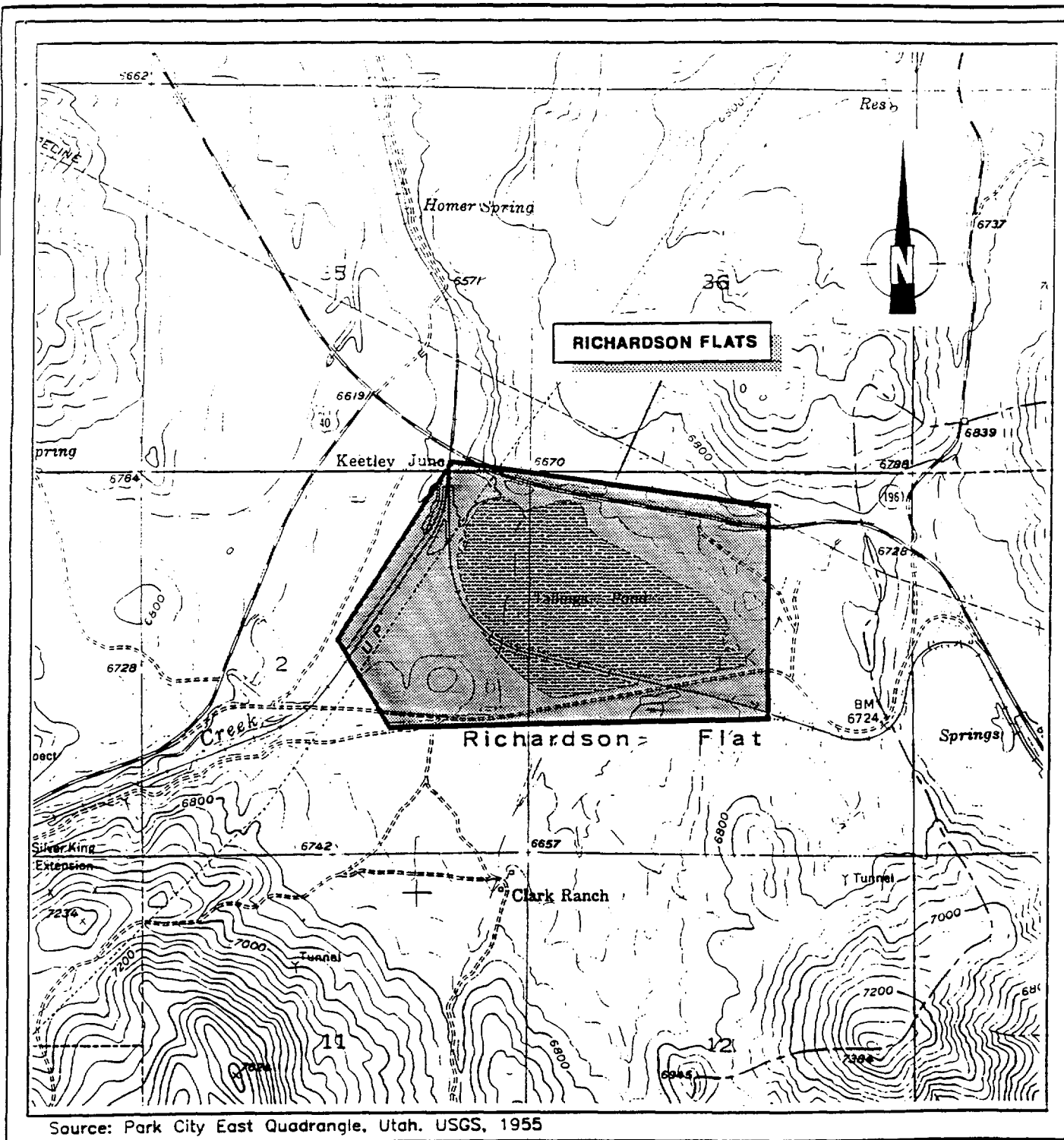
and 2) RF-GW-30, a metals rinsate blank derived from an 8-inch length of silicone tubing that was reused once.

4.0 FIELD OBSERVATIONS

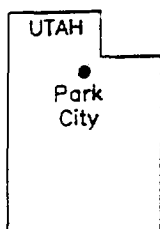
All sampling operations were performed with either 1) a potentially responsible party (PRP) present, 2) an environmental consultant representing the PRP being present, or 3) both a PRP and its consultant being present. Questions and comments by the PRP and its consultant were invited by the TAT in order to address any misunderstandings during sampling activities, however, there were none. Split samples were declined by the PRP, however, the PRP did provide containers for metals samples which were filled by the TAT. Note that those samples were not preserved by the TAT due to insufficient acid supplies.

A geophysical survey, via a zone cross-over request, was conducted at each monitoring well during the time of TAT sampling operations. Note that the geophysical survey was conducted independently from, and after, the Denver Region VIII-TAT operations.

TAT sampling operations did show that the water levels in each well have continued to decline since well installation. Sampling activities were photodocumented and are presented in Appendix A.



LOCATION MAP



LEGEND



Site location

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY
RESPONSE, REMOVAL AND PREVENTION
EPA CONTRACT 68-WO-0037

TITLE:

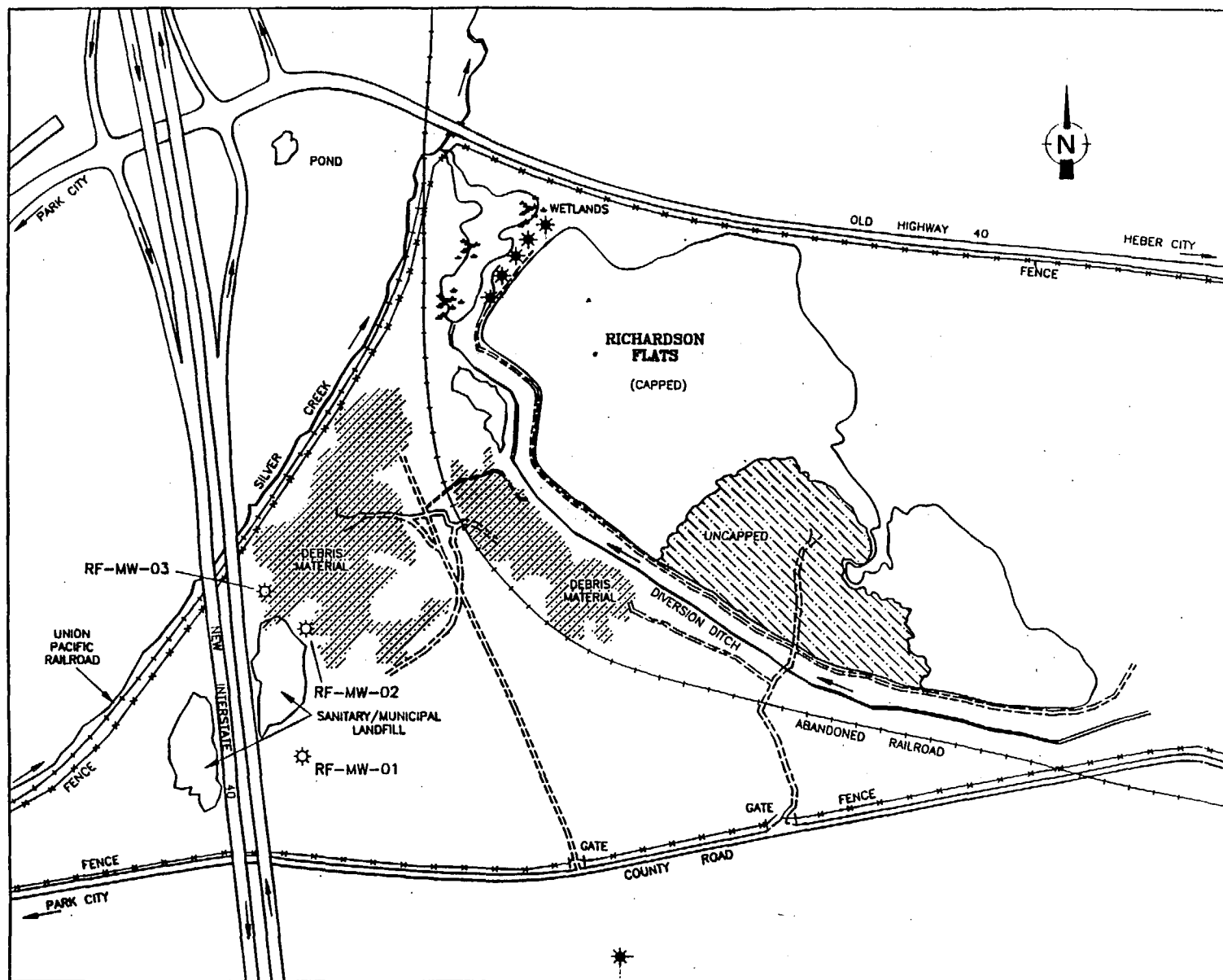
RICHARDSON FLATS
Park City, Utah
SITE LOCATION MAP

T.D.D. T08-9210-41

ecology & environment, inc.
DENVER, COLORADO

FIG. 1

Date: 05/92 Drawn by: RSM Scale: _____



- LEGEND**
- ★ Approximate location of existing monitoring wells previously installed
 - ⊙ Location of existing monitoring wells installed 06/23/92 to 06/26/92

0 160 320 640
Approximate Scale

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY
RESPONSE, REMOVAL AND PREVENTION
EPA CONTRACT 68-WO-0037

TITLE:
RICHARDSON FLATS
Park City, Utah
MONITORING WELL LOCATION MAP
T.D.D. T08-9210-41

ecology & environment, inc.
DENVER, COLORADO

FIG. 2

Date: 07/92 Drawn by: RSM Scale:

TABLE 1
SAMPLING STATISTICS
RICHARDSON FLATS TAILINGS SITE
PARK CITY, UTAH
TDD #T08-9210-041 PAN EUT0039SCA

	RF-MW-01	RF-MW-02	RF-MW-03	RF-MW-04	RF-GW-10	RF-GW-20	RF-GW-30
Initial Water Level (FBGS)	9.84	28.13	22.26	Duplicate	Trip	Rinsate	Rinsate
Final Water Level (FBGS)	13.16	28.18	22.30	of MW-03	Blank	Blank	Blank
Depth of Well (FBGS)	25.02	38.46	34.50				
Volume of Purged (Gallon)	7.5	4.5	6.0				
Rate Purged (Gallons/Min)	.14	.13	.19				
OVA Reading - Open Well (ppm Above Background)	BKGD	11.0	9.0				
OVA Reading - During Purging (ppm Above Background)	BKGD	0.8	32-50				
pH	7.7	6.8	7.0				
Specific Conductivity (MS)	9.36	2.15	1.84				
Temperature (°C)	8.0	10.0	10.5				
Percent Sediment (Estimated)	Trace	2	2				

TABLE 2
SAMPLE DOCUMENTATION
RICHARDSON FLATS TAILINGS SITE
PARK CITY, UTAH
TDD #T08-9210-041 PAN EUT0039SCA

SAMPLE NUMBER	DATE	TIME	ANALYTICAL PARAMETER	EPA TAG NUMBER	CHAIN OF CUSTODY NUMBER	FED EX AIRBILL NUMBER
RF-MW-01	11/9/92	1220	Total Metals	8-62601	016243	5684176374
	11/9/92	1220	Total Metals (Filtered)	8-62602	016243	5684176374
	11/9/92	1211	BNA	8-62603	012255	5684176385
	11/9/92	1216	Pest/PCB	8-62604	012255	5684176385
	11/9/92	1206	VOA	8-62605	012255	5684176385
RF-MW-02 (Triple Volume)	11/10/92	1000	Total Metals	8-62618	016243	5684176374
	11/10/92	1000	Total Metals	8-62617	016243	5684176374
	11/10/92	1045	Total Metals (Filtered)	8-62616	016243	5684176374
	11/10/92	1045	Total Metals (Filtered)	8-62615	016243	5684176374
	11/10/92	1000	BNA	8-62614	016257	5684176385
	11/10/92	1000	BNA	8-62613	016257	5684176385
	11/10/92	1000	BNA	8-62612	016257	5684176385
	11/10/92	1000	Pest/PCB	8-62611	016257	5684176385
	11/10/92	1000	Pest/PCB	8-62610	016257	5684176385
	11/10/92	1000	Pest/PCB	8-62609	016257	5684176385
	11/10/92	1000	VOA	8-62608	016256	5684176385
	11/10/92	1000	VOA	8-62607	016256	5684176385
	11/10/92	1000	VOA	8-62606	016256	5684176385
RF-MW-03	11/10/92	1240	Total Metals	8-62623	016243	5684176374
	11/10/92	1240	Total Metals (Filtered)	8-62622	016243	5684176374
	11/10/92	1240	BNA	8-62621	016255	5684176385
	11/10/92	1240	Pest/PCB	8-62620	016255	5684176385
	11/10/92	1240	VOA	8-62619	016255	5684176385
RF-MW-04 (Duplicate of RF-MW-03)	11/10/92	1240	Total Metals	8-62628	016243	5684176374
	11/10/92	1240	Total Metals (Filtered)	8-62627	016243	5684176374
	11/10/92	1240	BNA	8-62626	016255	5684176385
	11/10/92	1240	Pest/PCB	8-62625	016255	5684176385
	11/10/92	1240	VOA	8-62624	016255	5684176385
RF-GW-10 (Trip Blank)	11/10/92	1430	VOA	8-62630	016255	5684176385
RF-GW-20 (Rinsate Blank)	11/10/92	1120	VOA	8-62629	016256	5684176385
RF-GW-30 (Rinsate Blank)	11/10/92	1115	Total Metals	8-63535	016244	5684176385

APPENDIX A
PHOTODOCUMENTATION



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT monitoring purge water with organic vapor analyzer (OVA)
Location: Richardson Flats Tailings Site; monitoring well RF-MW-01
City: Park City County: Summit State: UT
Date: November 9, 1992 Time: _____ Hours
Photographer: Mike Zimmerman, OSC
Film: Kodak ASA: 200 Location of Negative: EPA-ERB
File: T08-9210-041
Witness: Cordel Schmidt
Process: C-41
Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT obtaining VOA sample via peristaltic pump

Location: Richardson Flats Tailings Site; monitoring well RF-MW-01

City: Park City County: Summit State: UT
Date: November 9, 1992 Time: _____ Hours
Photographer: Mike Zimmerman, OSC
Film: Kodak ASA: 200 Location of Negative: EPA-ERB
File: T08-9210-041
Witness: Cordel Schmidt
Process: C-41
Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT filtering metals sample via peristaltic pump and .45 micron filter

Location: Richardson Flats Tailings Site; monitoring well RF-MW-01

City: Park City County: Summit State: UT

Date: November 9, 1992 Time: _____ Hours

Photographer: Mike Zimmerman, OSC

Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Cordel Schmidt

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT preserving (acidifying) a metals sample

Location: Richardson Flats Tailings Site; monitoring well RF-MW-01

City: Park City County: Summit State: UT

Date: November 9, 1992 Time: _____ Hours

Photographer: Mike Zimmerman, OSC

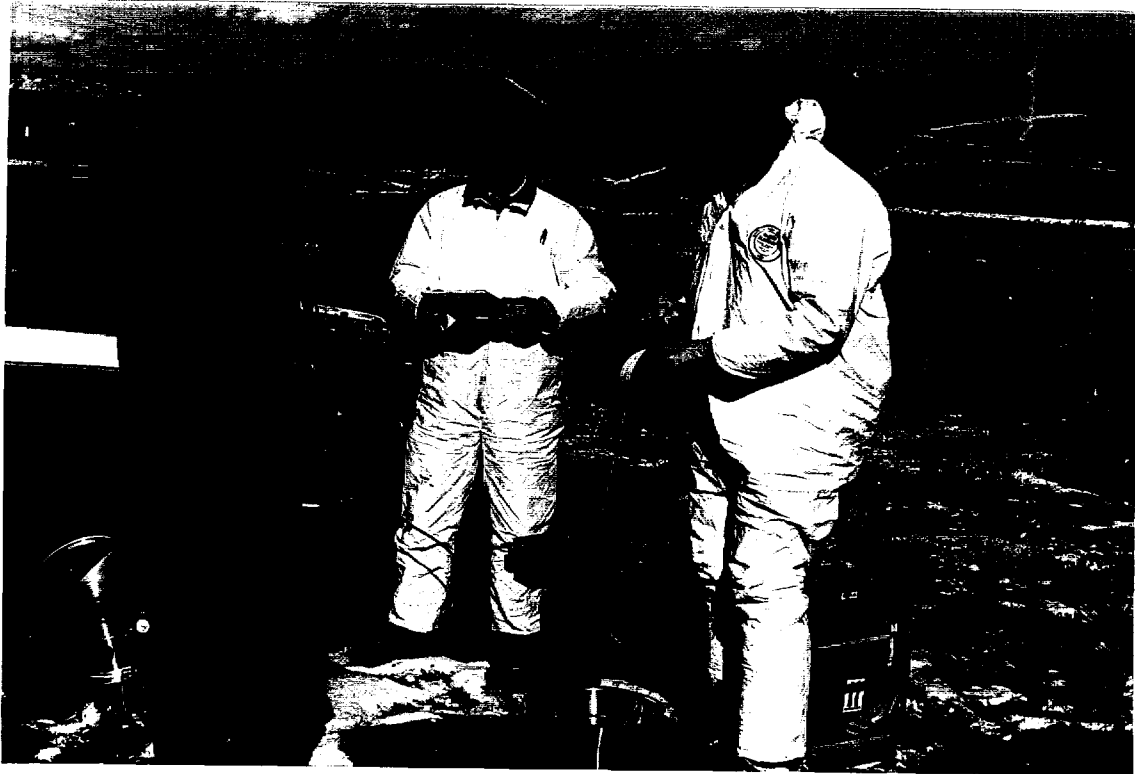
Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Cordel Schmidt

Process: C-41

Paper: Fujicolor



**OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY**

Subject: TAT obtaining water level measurements

Location: Richardson Flats Tailings Site; monitoring well RF-MW-02

City: Park City County: Summit State: UT

Date: November 10, 1992 Time: _____ Hours

Photographer: Mike Zimmerman, OSC

Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Cordel Schmidt

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: Disposable bailer and rope

Location: Richardson Flats Tailings Site; monitoring well RF-MW-02

City: Park City County: Summit State: UT

Date: November 10, 1992 Time: _____ Hours

Photographer: Cordel Schmidt

Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Troy Sanders

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT obtaining pH, specific conductivity, and temperature measurements

Location: Richardson Flats Tailings Site; monitoring well RF-MW-02

City: Park City County: Summit State: UT

Date: November 10, 1992 Time: _____ Hours

Photographer: Mike Zimmerman, OSC

Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Cordel Schmidt

Process: C-41

Paper: Fujicolor



**OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY**

Subject: TAT obtaining samples via bailer

Location: Richardson Flats Tailings Site; monitoring well RF-MW-02

City: Park City County: Summit State: UT

Date: November 10, 1992 Time: _____ Hours

Photographer: Cordel Schmidt

Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Troy Sanders

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT obtaining initial OVA readings upon opening well

Location: Richardson Flats Tailings Site; monitoring well RF-MW-03

City: Park City County: Summit State: UT

Date: November 10, 1992 Time: Hours

Photographer: Mike Zimmerman, OSC

Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Troy Sanders

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT bailing (purging) well prior to sampling

Location: Richardson Flats Tailings Site; monitoring well RF-MW-03

City: Park City County: Summit State: UT

Date: November 10, 1992 Time: Hours

Photographer: Cordel Schmidt

Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Troy Sanders

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT obtaining samples via bailer

Location: Richardson Flats Tailings Site; monitoring well RF-MW-03

City: Park City County: Summit State: UT

Date: November 10, 1992 Time: _____ Hours

Photographer: Mike Zimmerman, OSC

Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Cordel Schmidt

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT filtering metals sample via peristaltic pump and .45 micron filter

Location: Richardson Flats Tailings Site; monitoring well RF-MW-03

City: Park City County: Summit State: UT

Date: November 10, 1992 Time: _____ Hours

Photographer: Mike Zimmerman, OSC

Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9210-041

Witness: Cordel Schmidt

Process: C-41

Paper: Fujicolor

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PAGE #

Contact the Superfund Records Center to view this document.

SITE NAME Richardson Flat Tailings

OPERABLE UNIT _____

REPORT OR DOCUMENT TITLE Rpt of Sampling Act for Landfill
DATE OF DOCUMENT Feb. 2, 1993 ^{area}
DESCRIPTION OF IMAGERY Color Photos
NUMBER AND TYPE OF IMAGERY ITEM(S) 15 Photos